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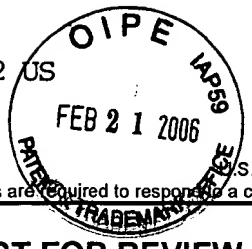

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 13DV-13495

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on February 21, 2006

Signature

Typed or printed name Robert B. Reeser, III

Application Number	Filed
09/652,097	August 31, 2006

First Named Inventor: Mark Richard Shaw

Art Unit	Examiner
2123	Stevens, Thomas H.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☒ attorney or agent of record. Registration number 45,548.
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

Signature

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Telephone number

February 21, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mark Richard Shaw, et al.

Serial No.: 09/652,097

Filed: August 31, 2000

For: METHOD AND APPARATUS FOR MODEL BASED SHROUDED BELLOWS STIFFNESS DETERMINATIONS

Art Unit: 2123

Examiner: Stevens, Thomas H.

ARGUMENTS IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW

The rejection of Claims 1-4, 6-7, and 9-12 under 35 U.S.C. § 112, first paragraph is respectfully traversed.

It is asserted that "the stiffness multiplier is a mere 'listing' of what is associated with; one cannot solve a solution since the application is silent on the specifics of the empirical data is to be used or extracted" (Pages 6 and 7 of the Final Office Action) and "[t]he specification fails to detail how the regression equation, for example, is computed; there [is] little of no explanation of what the equation consist of nor what numerical values or limits the regression equation requires" (Page 2 of the Final Office Action). However, as is known, the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons in the field. The specification clearly describes that the stiffness multiplier is determined by testing several different bellows configurations and using the dynamic test data obtained therefrom in a regression equation. For example, the specification recites in part that:

> [s]hrouded bellows 12 is characterized using a standard geometry element that includes an assigned stiffness multiplier based on dynamic stiffness component test data. The stiffness multiplier is a finite element input that may be selectively adjusted to customize a dynamic stiffness of a particular shrouded bellows element. The stiffness multiplier is determined 120 with a regression equation that accounts for tube sub-system diameter 37 and 38, system operating pressure, bellows pitch 80, and dynamic system operating inputs. The regression equation is based on dynamic stiffness test data

> obtained as a result of testing several different shrouded bellows configurations. Each different shrouded bellows configuration can be analytically modeled to determine a unique stiffness multiplier for that specific shrouded bellows configuration and to generate a tube sub-system analytical model.

Specification, page 4, line 23-page 5, line 5. As such, the specification is not required to provide an arithmetic or equivalent software process for a particular solution to determining a stiffness multiplier because a particular solution is not claimed and such a process would be known to one skilled in the art based on Applicants' specification. Accordingly, Applicants submit that the specification contains a written description of the invention, and of the manner and process of making and using it, to enable any person skilled in the art to make and use the same.

On page 3 of the Final Office Action, it is asserted that the specification fails "to disclose what the 'interactive scheme' is or what the 'flexibility factors' are" and therefore "an individual reading the disclosure cannot arithmetically enable this process". However, as discussed above, the patentee is not required to include in the specification information readily understood by practitioners, lest every patent be written as a comprehensive tutorial and treatise for the generalist, instead of a concise statement for persons in the field. Moreover, the specification describes an exemplary analytical approach to determining flexibility factors, of which stiffness multiplier is one, wherein:

> a three inch diameter shrouded bellows centered on a twelve inch cantilevered straight tube section (not shown) within a system pressurized to approximately 100 psia in an approximately constant 2g vibratory environment, produced a natural frequency response of 166 Hz. The test component was modeled using finite element analysis to determine that assigning a flexibility factor of approximately 0.328, enabled the analytical model to yield the same natural frequency response as the component test piece under the approximate same operating conditions.

Specification, page 5, lines 18-25. Accordingly, Applicants submit that the specification contains a written description of the invention, and of the manner and process of making and using it, to enable any person skilled in the art to make and use the same.

On page 7 of the Final Office Action, it is asserted that "Applicants arguments is circular by stating the 'method can be practice on a computer such as a personal computer

or workstation'...then states 'The particular arithmetic or software solution is not claimed and the method includes steps that collect data from a dynamic stiffness test, which does not lend itself to an arithmetic or software process'...." Applicants disagree that such an argument is circular. Rather, the dynamic stiffness test used to obtain dynamic stiffness test data may not lend itself to an arithmetic or software process, while at least some steps recited in Claims 1-4, 6, 7, and 9-12 can be practiced using a computer. For example, Claim 7 recites a processor configured to, among other things, "determine a stiffness multiplier within the shrouded bellows components using a regression technique based on dynamic stiffness test data".

For at least the reasons set forth above, Applicants submit that Claims 1-4, 6-7, and 9-12 satisfy the requirements of Section 112, first paragraph. Applicants therefore request that the Section 112 rejection of Claims 1-4, 6, 7, and 9-12 be withdrawn.

The rejection of Claims 1-3, 6, 7, and 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Technical Data Sheet "Pressure Fundamentals and Transmitter Selection" (Rosemount), in view of "Modeling Flexible Bellows by Standard Beam Finite Elements" (Broman) is respectfully traversed.

Claim 1 recites a computer-implemented method for predicting natural frequency responses, wherein the method includes "providing at least one tube sub-system including a plurality of shrouded bellows components...determining a stiffness multiplier within each of the shrouded bellows components using a regression technique based on dynamic stiffness test data...inputting the determined stiffness multiplier into a computer model that applies a standard geometry element and a flexibility factor based upon the stiffness multiplier to predict a natural frequency response...and determining locations for duct supports based on the natural frequency response."

No combination of Rosemount and Broman describes or suggests the method recited in Claim 1. For example, neither Rosemount or Broman, considered alone or in combination, describe or suggest determining a stiffness multiplier within each of a plurality of shrouded bellows components using a regression technique based on dynamic stiffness test data. Rather, Broman describes modeling bellows using a beam element formulation of the computation software I-DEAS Master Series 6. Rosemount does not make up for the deficiencies of Broman, but rather describes an equation useful in identifying the natural frequency response of a flat diagram. Because Rosemount and Broman each individually fail to describe or suggest one or more elements of Claim 1, it follows that a combination of

Rosemount and Broman cannot describe or suggest such element(s). For at least the reasons set forth above, Claim 1 is submitted to be patentable over Rosemount in view of Broman.

Claims 2, 3, and 6 depend from Claim 1. When the recitations of Claims 2, 3, and 6 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2, 3, and 6 likewise are patentable over Rosemount in view of Broman.

On page 8 of the Final Office Action, it is asserted that "the applicants state that the Broman (Modeling Flexible Bellows) reference does suggest a stiffness multiplier" and "Broman does teach a stiffness equation on page 17". Although Broman describes determining axial stiffness by modeling the bellows as an equivalent pipe and a uniform rod, determining a bending stiffness of the bellows by modeling it as a beam with the bending stiffness expressed in terms of the axial stiffness, and determining a torsional stiffness of the bellows by modeling the bellows as a pipe, Broman does not describe or suggest determining a stiffness multiplier using a regression technique based on dynamic stiffness test data.

Claim 7 recites an apparatus for determining natural frequency response of shrouded bellows components, wherein the apparatus includes a processor configured to "determine a stiffness multiplier within the shrouded bellows components using a regression technique based on dynamic stiffness test data...use the determined stiffness multiplier in a model that applies a standard geometry element and a flexibility factor based upon the stiffness multiplier to predict a natural frequency response of the bellows...and determine a location of a duct support based on the natural frequency response."

No combination of Rosemount and Broman describes or suggests the apparatus recited in Claim 7. For example, as described above neither Rosemount or Broman, considered alone or in combination, describe or suggest a processor configured to determine a stiffness multiplier within shrouded bellows components using a regression technique based on dynamic stiffness test data. Rather, Broman describes modeling bellows using a beam element formulation of the computation software I-DEAS Master Series 6. Rosemount does not make up for the deficiencies of Broman, but rather describes an equation useful in identifying the natural frequency response of a flat diagram. Because Rosemount and Broman each individually fail to describe or suggest one or more elements of Claim 7, it follows that a combination of Rosemount and Broman cannot describe or suggest such element(s). For at least the reasons set forth above, Claim 7 is submitted to be patentable over Rosemount in view of Broman.

Claims 9-12 depend from Claim 7. When the recitations of Claims 9-12 are considered in combination with the recitations of Claim 7, Applicants submit that dependent Claims 9-12 likewise are patentable over Rosemount in view of Broman.

On page 8 of the Final Office Action, it is asserted that "the applicants state that the Broman (Modeling Flexible Bellows) reference does suggest a stiffness multiplier" and "Broman does teach a stiffness equation on page 17". Although Broman describes determining axial stiffness by modeling the bellows as an equivalent pipe and a uniform rod, determining a bending stiffness of the bellows by modeling it as a beam with the bending stiffness expressed in terms of the axial stiffness, and determining a torsional stiffness of the bellows by modeling the bellows as a pipe, Broman does not describe or suggest determining a stiffness multiplier using a regression technique based on dynamic stiffness test data.

Moreover, in contrast to the assertion within the Final Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Rosemount with Broman because there is no motivation to combine the references suggested in the art. For example, Rosemount does not describe a bellows that carries system flow but is rather, dead ended in the pressure measurement device, and, in contrast to Rosemount, Broman describes a bellows in an exhaust system that is modeled based on system flow through the bellows. Because there is no motivation in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 1-3, 6, 7, and 9-12 be withdrawn.

For at least the reasons above, Applicants respectfully request the 103 rejection of Claims 1-3, 6, 7, and 9-12 be withdrawn.

Please see the Amendment After Final mailed on January 23, 2006 at pages 5-11 for more detail.